where X = specified size of desired nanopores and $X \leq 10$nm, nm;

$Z = 0.65-0.75$ nm;

$R = \nu M_c \rho_k / M_k \rho_c$

where

M_c - molecular mass of carbon, g/mole;

M_k - molecular mass of the selected carbide, g/mole;

ρ_k - density of the selected carbide, g/ccm;

ρ_c - density of carbon, g/ccm;

ν - number of carbon atoms in carbide molecule;

C1

forming an intermediate body with transport pores having a size larger than 100 nm by shaping the selected powders;

heat treating the intermediate body in a medium of gaseous hydrocarbon or hydrocarbon mixtures at a temperature exceeding the decomposition temperature for the hydrocarbon or hydrocarbons until the mass of the intermediate body has increased at least 3% thereby producing a work piece in the form of a rigid carbonaceous skeleton; and

thereafter thermochemically treating the work piece in a medium of a gaseous halogen to produce the porous carbon article having nanopores of a size X.

Amend claim 27 as follows:

27. (amended) A method for producing a porous carbon article comprising the steps of:

C2

selecting powders of at least one carbide of an element selected from the group consisting of Group III, IV, V and VI of Mendeleyv's Periodic System, the at least one carbide having physical and chemical constants to obtain a porous carbon article having a desired nanoporosity by calculating using the relationship:

$$X = Z*(1-R)/R$$

where X = specified size of desired nanopores and X<10nm, nm;

$$Z = 0.65-0.75 \text{ nm};$$

$$R = \nu M_c \rho_k / M_k \rho_c$$

where

M_c - molecular mass of carbon, g/mole;

M_k - molecular mass of the selected carbide, g/mole;

ρ_k - density of the selected carbide, g/ccm;

ρ_c - density of carbon, g/ccm;

ν - number of carbon atoms in carbide molecule;

forming an intermediate body with transport pores having a size larger than 100 nm by shaping the selected powders;

heat treating the intermediate body in a medium of gaseous hydrocarbon or hydrocarbon mixtures at a temperature exceeding the decomposition temperature for the hydrocarbon or hydrocarbons until the mass of the intermediate body has increased at least 3% thereby producing a work piece in the form of a rigid carbonaceous skeleton; and

thereafter thermochemically treating the work piece in a medium of a gaseous halogen to produce the porous carbon article having nanopores of a size X, and

wherein the intermediate body has a porosity determined with the following relationship:

$$\varepsilon_0 = (1 - \nu_{np}/\Sigma K_i \varphi_i) * 100$$

ε_0 porosity of intermediate body vol%;

where

φ_i - volumetric part of i-th carbide in particle mixture;

ν_{np} - predetermined volumetric part of nanopores in final article;

$$K_i = 1 - \nu M_c \rho_{ki} / M_{ki} \rho_c$$

where M_c - molecular mass of carbon, g/mole;

M_{ki} - molecular mass of i-th carbide, g/mole;

ρ_{ki} - density of i-th carbide, g/ccm;

ρ_c - density of cabon, g/ccm;

ν - number of carbon atoms in carbide molecule.